OCR
RECOGNISING ACHIEVEMENT

SPECIMEN

General Certificate of Secondary Education

A534

Design and Technology
Innovator Suite
Graphics

Unit A534: Technical aspects of designing and making

Specimen Paper

Time: 1 hour 15 minutes

Candidates answer on the question paper.
Additional materials:

Candidate Forename		Candidate Surname	

Centre Number						Candidate Number				

INSTRUCTIONS TO CANDIDATES

- Write your name in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each answer carefully and make sure you know what you have to do before starting your answer.
- Answer **all** the questions.
- Do not write in the bar codes.
- Do not write outside the box bordering each page.
- Write your answer to each question in the space provided.

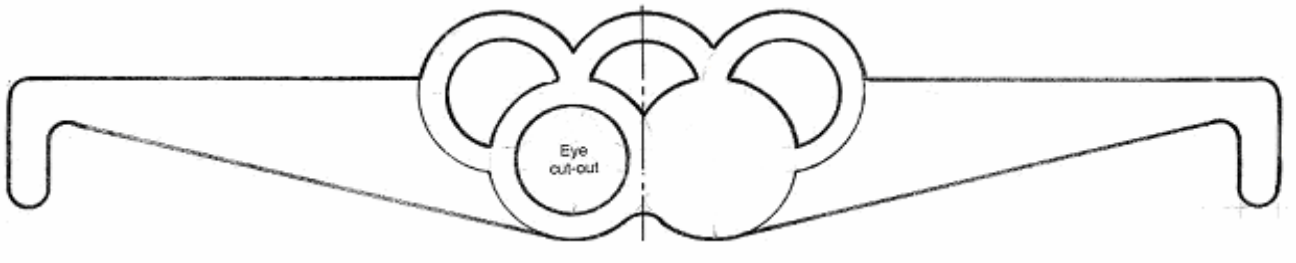
INFORMATION FOR CANDIDATES

- The number of marks for each question is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this paper is 60.

FOR EXAMINER'S USE	
1	
2	
3	
4	
5	
TOTAL	

Answer **all** questions.

1 The drawing below shows the development (net) of a pair of children's novelty sunglasses made from thin sheet plastic. The sunglasses will be given away at the 2012 Olympic Games to be held in London.

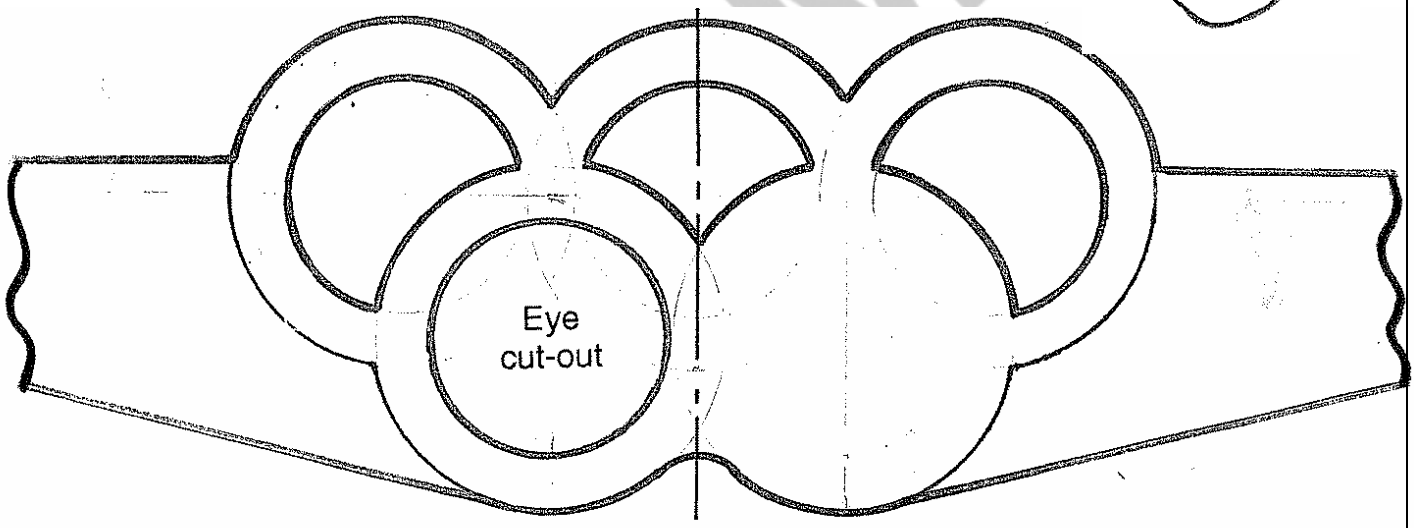


development (net) of sunglasses not to scale

(a) Complete the full size part development shown below by adding:

(i) the missing eye cut-out; **[1]**

(ii) the fold lines that would be required for the sunglasses to fit the child shown on the right. **[2]**



full size part development (net) of sunglasses

(b) Give **two** advantages of making the sunglasses from thin sheet plastic rather than card.

Advantage 1 ..... **[1]**

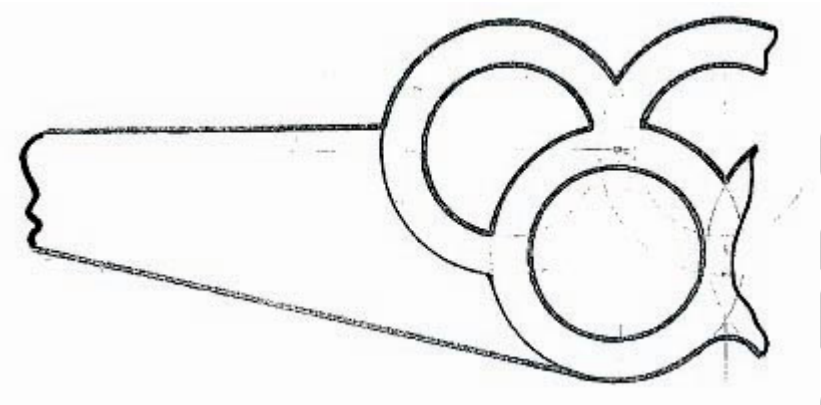
Advantage 2 ..... **[1]**

(c) Name a suitable plastic for making the sunglasses.

Material ..... **[1]**

(d) Two pieces of thin coloured plastic are to be glued in place over the eye cut-outs to make coloured lenses.

Sketch on the drawing of the sunglasses shown below a suitable shape for one lens. **[1]**



(e) Quality control checks have shown that the coloured lenses soon peel off.

Use a sketch and notes to show how the design could be improved to stop the lenses falling off.

[3]

(f) Use a sketch and notes to show how thermochromic inks could be used to add interest to the sunglasses.

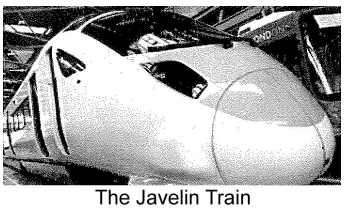
[2]

Total [12]

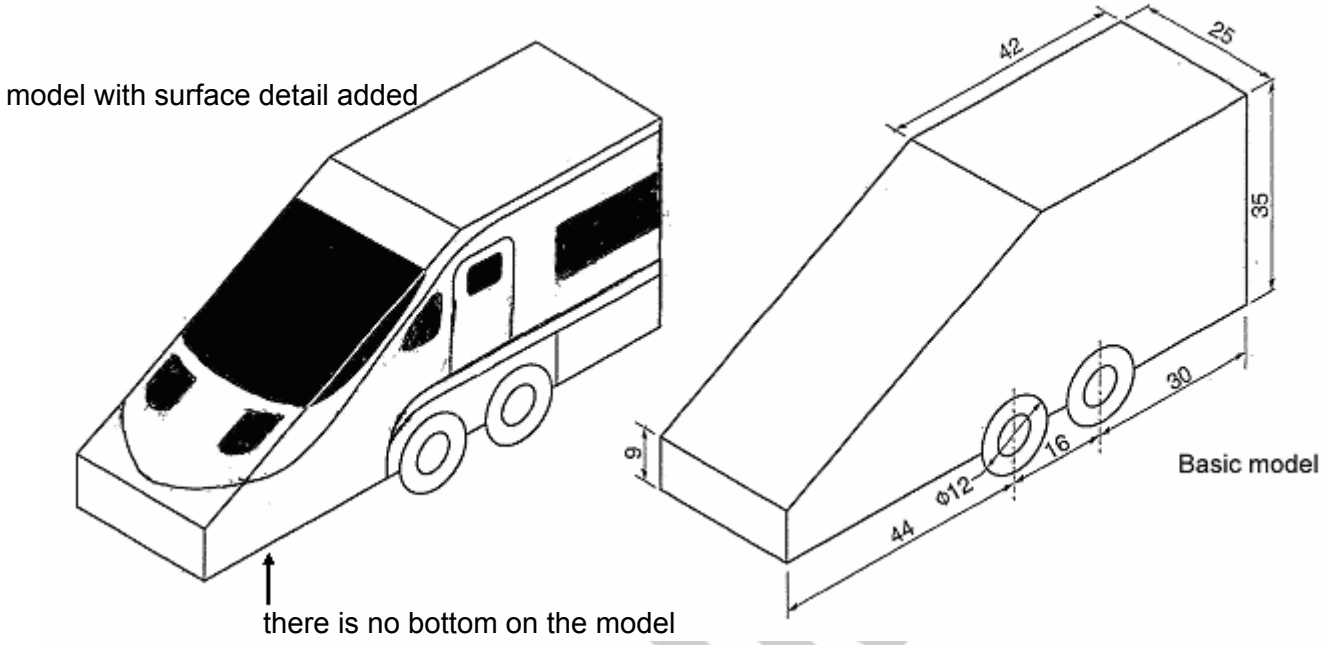
2 The Javelin Train Service will take 25,000 people per hour from central London to the Olympic Park.

As part of the campaign to promote this service, card models of the train will be produced.

The pictorial views shown below give details of the model.



The Javelin Train



(a) Explain why, when designing the model the shape of the train was simplified.

.....

.....

.....

..... **[2]**

(b) Use a drawing and notes to explain how die cutting would be used in the manufacture of the models to cut out the developments and crease the fold lines.

[3]

(c) Name a piece of CAM equipment that could be used in school to cut-out developments.

..... **[1]**

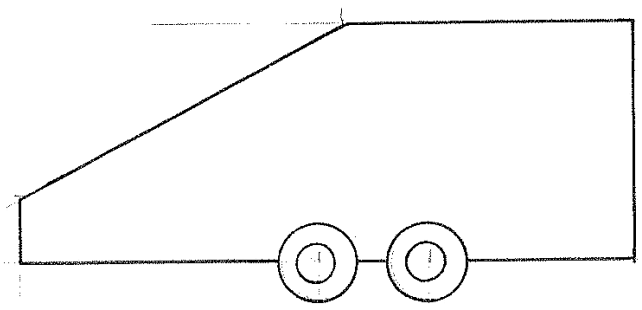
(d) One surface of the development (net) required to make the basic model has been drawn below.

Complete the full size development (net) by adding:

(i) the other **five** surfaces; **[5]**

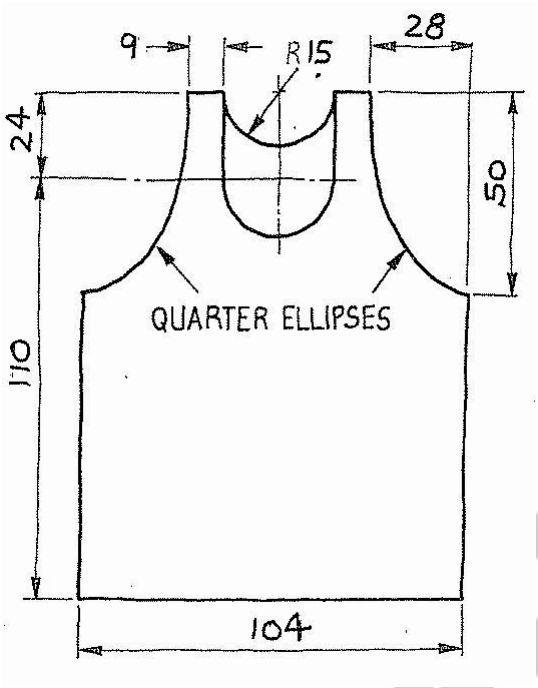
(ii) the glue tabs. **[1]**

Do not show any of the surface detail. **Total [12]**



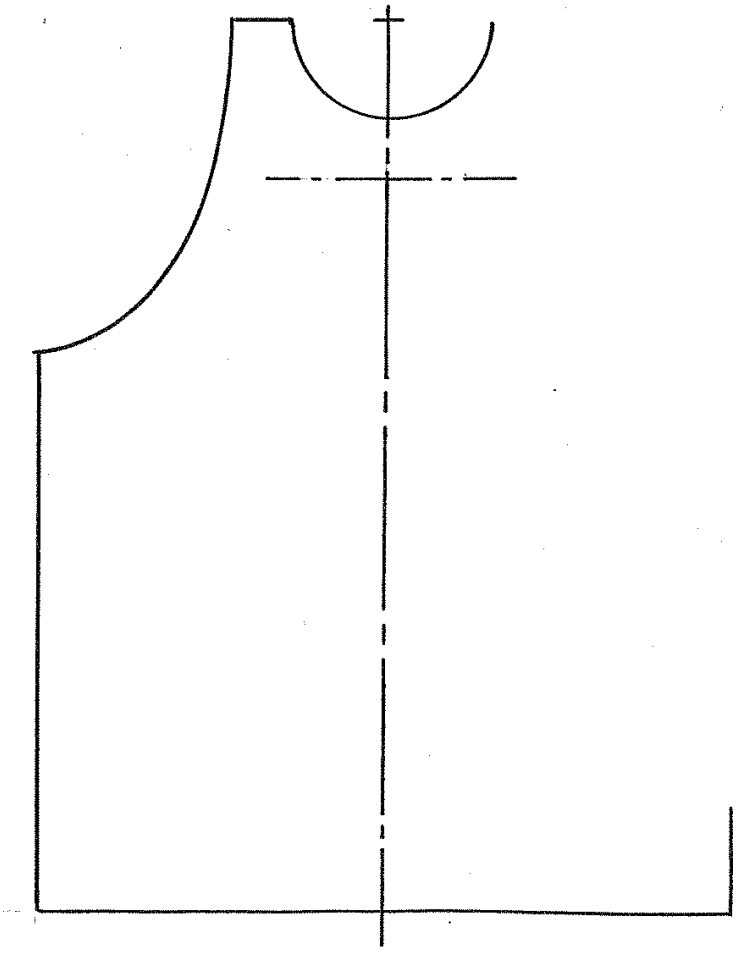
full size development (net) of model train

3 The freehand sketch below shows a ticket for the athletic events at the 2012 Olympic Games.



(a) Complete the enlarged view of the ticket.

Construction for the quarter ellipse must be clearly shown.



enlarged view of ticket

[5]

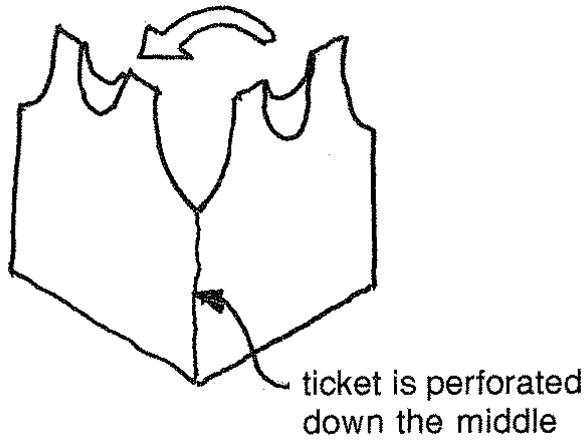
(b) State **two** pieces of information that you would expect to find on the ticket.

1. ..... **[1]**

2. ..... **[1]**

(c) The ticket opens out as shown in the sketch below and is perforated down the middle.

Use a sketch and notes to explain what is meant by perforated. **[2]**



(d) Explain why the production of this shape of ticket is less environmentally friendly than producing rectangular tickets.

.....

.....

.....

..... **[2]**

(e) Name an industrial process that could be used to print 200,000 tickets.

..... **[1]**

Total [12]

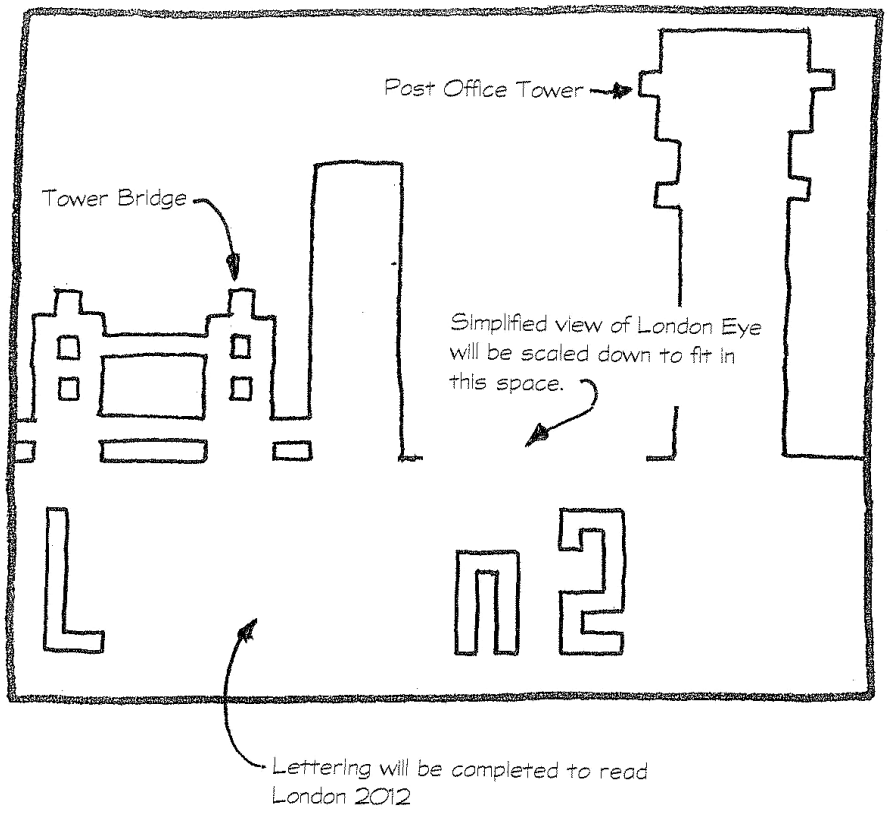
Section B

Answer **all** questions

4 Large electronic dot matrix screens will be put up in public places to give information about the 2012 Olympic Games.

The sketch below shows an incomplete design for one of the images that will be shown on the screens.

On big advantage of dot matrix screens is that images and information can be changed and updated.



(a) Name **one** other method of mass communication that could be used and easily updated to give information about the 2012 Olympics.

..... **[1]**

(b) Explain why using these screens to communicate information is more environmentally friendly than producing and distributing leaflets.

.....

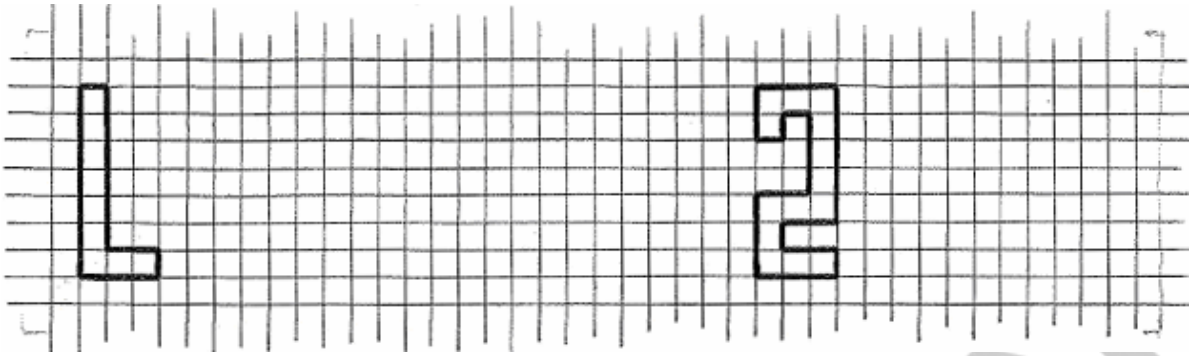
.....

.....

..... **[2]**

(c) Complete the lettering design shown below so that it reads **London 2012**.

The missing letters must be drawn in the same style and to the same size and proportion as the given letters

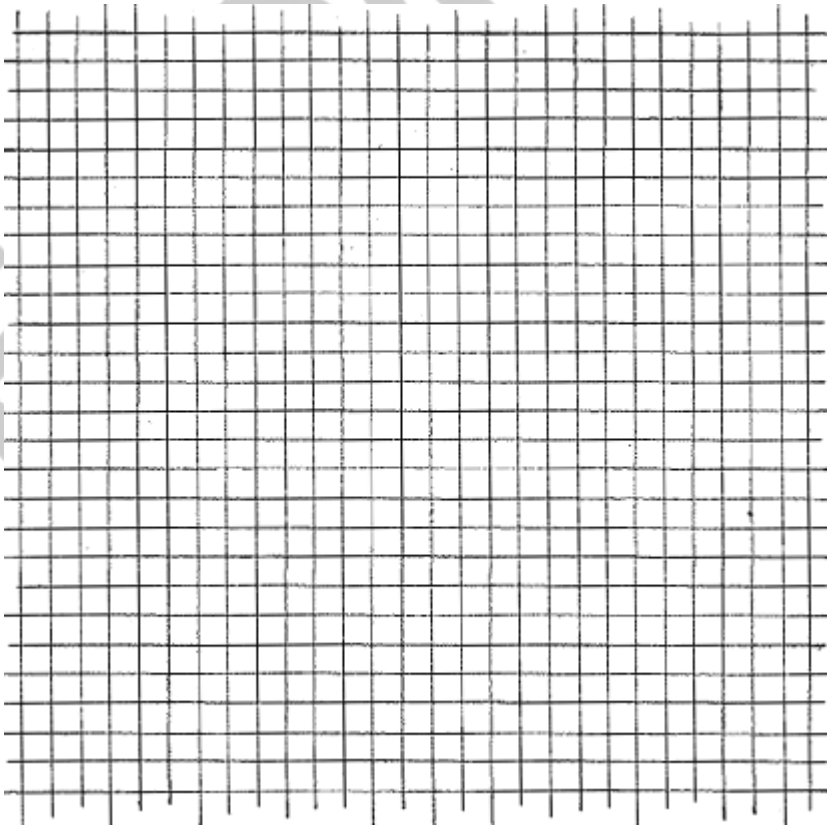


[4]

(d) On the grid shown below draw a simplified view of the London Eye that could be used to complete the London Skyline.

The drawing must be in the same style as the other buildings.

London Eye



[5]

Total [12]

5 A set of stamps will be issued to commemorate the 2012 Olympics.

Each stamp is to illustrate a different athletics event.

The design to be used on the stamp showing running events is shown on the right.

The other stamps are to show similar stylised athletes.

stylised athlete to be used on running events stamp

(a) Develop a design for a stamp based on the following specification.

The stamp must feature **one** of the following events:

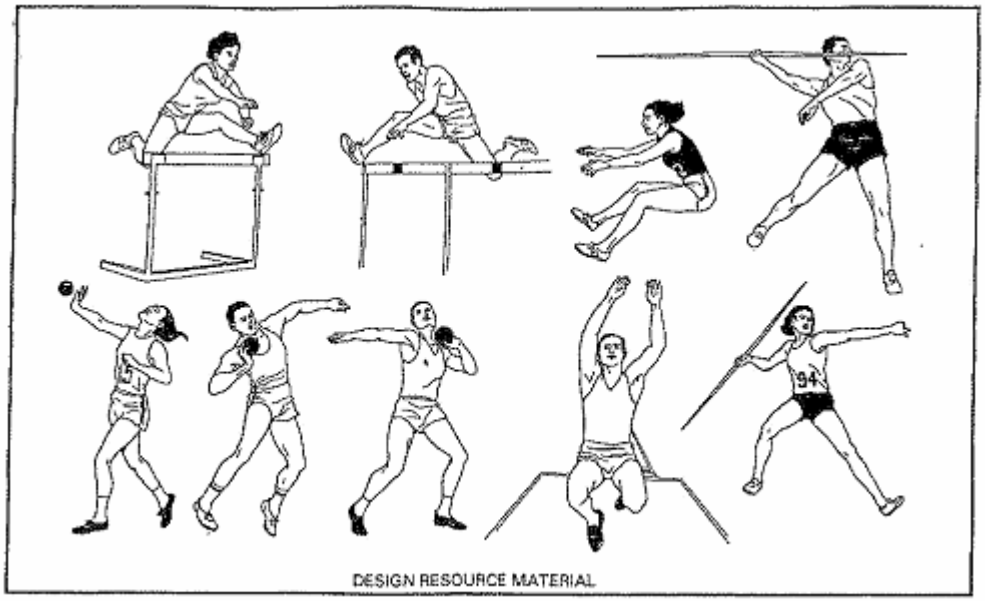
(i) shot put;

(ii) long jump:

(iii) javelin;

(iv) hurdles.

The design must include a **stylised** drawing of an athlete involved in the event that you have chosen.



DESIGN RESOURCE MATERIAL

Use this space for your design work

[3]

(b) Make a drawing of your chosen design within the outline of the stamp given below. **[4]**

(c) Suggest **one** way in which the stamps could be considered 'collectable' products.

.....

..... **[1]**

(d) Name **two** other graphic products that could be considered collectable.

Product 1. ..... **[1]**

Product 2. ..... **[1]**

(e) Explain why collectable products have only limited harmful effect on the environment.

.....

.....

.....

..... **[2]**

Total [12]

Paper Total [60]

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OCR
RECOGNISING ACHIEVEMENT

OXFORD CAMBRIDGE AND RSA EXAMINATIONS

General Certificate of Secondary Education

DESIGN AND TECHNOLOGY: GRAPHICS

[A534]

Unit A534: Technical aspects of designing and making

Specimen Mark Scheme

The maximum mark for this paper is 60.

Question Number	Answer	Max Mark
1	**The drawing below shows the development (net) of a pair of children's novelty sunglasses made from thin sheet plastic. The sunglasses will be given away at the 2012 Olympic Games to be held in London.**	
1(a)	**Complete the full size part development shown below by adding:**	
1(a)(i)	**the missing eye cut-out;**	
	Eye cut-out drawn to correct size in correct position	**[1]**
1(a)(ii)	**the fold lines that would be required for the sunglasses to fit the child shown on the right.**	
	Each fold line positioned 60mm-65mm either side of the centre line 1 mark	**[2]**
1(b)	**Give <u>two</u> advantages of making the sunglasses from thin sheet plastic rather than card.**	
	Each appropriate advantage 1 mark e.g. stronger, last longer, waterproof.	**[2]**
1(c)	**Name a suitable plastic for making the sunglasses.**	
	Appropriate material named 1 mark e.g. polystyrene.	**[1]**
1(d)	**Two pieces of thin coloured plastic are to be glued in place over the eye cut-outs to make coloured lenses.** **Sketch on the drawing of the sunglasses shown below a suitable shape for one lens.**	
	Lens drawn slightly bigger than eye cut-out but not overlapping edges of sunglasses	**[1]**
1(e)	**Quality control checks have shown that the coloured lenses soon peel off.** **Use a sketch and notes to show how the design could be improved to stop the lenses falling off.**	
	Solution suggesting a stronger glue (1) **OR** Solution showing lens 'sandwiched' between two pieces of material (2) Quality/clarity of communication	**[3]**
1(f)	**Use a sketch and notes to show how thermochromic inks could be used to add interest to the sunglasses.**	
	Appropriate design linked to Olympics (this could be just lettering) Notes that explain that design would change with changes in temperature	**[2]**

Question Number	Answer	Max Mark
2	**The Javelin Train Service will take 25,000 people per hour from central London to the Olympic Park.** **As part of the campaign to promote this service card models of the train will be produced.** **The pictorial views shown below give details of the model.**	
2(a)	**Explain why, when designing the model, the shape of the train was simplified.** Reference to lots of curves involved (1 mark) which would make the shape very difficult to make (1 mark).	**[2]**
2(b)	**Use a drawing and notes to explain how die cutting would be used in the manufacture of the models to cut out the developments and crease the fold lines.** Understanding of cutting knives (1 mark) Understanding of creasing blades (1 mark) Appropriate explanation of how they are used (1 mark).	**[3]**
2(c)	**Name a piece of CAM equipment that could be used in school to cut out developments.** Appropriate equipment named e.g. laser cutter, cutter plotter.	**[1]**
2(d)	**One surface of the development (net) required to make the basic model has been drawn below.** **Complete the full size development (net) by adding:** **(<u>Do not</u> show any of the surface detail)**	
2(d)(i)	**the other <u>five</u> surfaces;** Top and back correctly positioned Second side correctly positioned Wheels added Sloping surface and front correctly positioned Majority of sizes are correct	**[5]**
2(d)(ii)	**the glue tabs.** At least four workable glue flaps correctly added.	**[1]**

Question Number	Answer	Max Mark
3	**The freehand sketch below shows a ticket for the athletic events at the 2012 Olympic Games.**	
3(a)	**Complete the enlarged view of the ticket.** **Construction for the quarter ellipse must be clearly shown.** Neck correctly added Vertical and horizontal lines correctly added Some attempt at appropriate ellipse construction (1) **OR** Correct ellipse construction shown (2) Good quality curve drawn (This make can be given without any evidence of construction)	**[5]**
3(b)	**State <u>two</u> pieces of information that you would expect to find on the ticket.** Each appropriate piece of information 1 mark e.g. venue, date, seat number	**[2]**
3(c)	**The ticket opens out as shown in the sketch below and is perforated down the middle.** **Use a sketch and notes to explain what is meant by perforated.** Sketch shows series of dashes or small holes Notes explain that this makes it easier to tear ticket	**[2]**
3(d)	**Explain why the production of this shape of ticket is less environmentally friendly than producing rectangular tickets.** More complex shape that creates waste material (1 mark) that the manufacturer has to dispose of (1 mark)	**[2]**
3(e)	**Name an industrial process that could be used to print 2000,000 tickets.** Appropriate process named e.g. offset lithography or digital printing	**[1]**

Question Number	Answer	Max Mark
4(a)	**Large electronic dot matrix screens will be put up in public places to give information about the 2012 Olympic Games.** **The sketch below shows an incomplete design for one of the images that will be shown on the screens.** **On big advantage of dot matrix screens is that images and information can be changed and updated.** **Name <u>one</u> other method of mass communication that could be used and easily updated to give information about the 2012 Olympics.** Appropriate communication method named e.g. internet, television or radio.	**[1]**
4(b)	**Explain why using these screens to communicate information is more environmentally friendly than producing and distributing leaflets.** Reference to less resources and/or materials being used in production process (1 mark) resulting in less pollution and/or problems relating to disposal of leaflets (1 mark).	**[2]**
4(c)	**Complete the lettering design shown below so that it reads <u>London 2012.</u>** **The missing letters must be drawn in the same style and to the same size and proportion as the given letters** All letters and numbers have some thickness and are correctly positioned Consistent thickness (1 square) used on all letters and numbers Letters are consistent height (5 or 6 squares) and numbers are all 7 squares high All letters and numbers are a consistent width of 3 squares	**[4]**
4(d)	**On the grid shown below draw a simplified view of the London Eye that could be used to complete the London Skyline.** **The drawing must be in the same style as the other buildings.** Design shows the 'ring' shape Design shows the 'pods' Design shows the support Some attempt has been made to simplify the shape using **mainly** vertical and horizontal lines (1 mark) **OR** Shape has been simplified using **only** vertical and horizontal lines	**[5]**

Question Number	Answer	Max Mark
5	**A set of stamps will be issued to commemorate the 2012 Olympics.** **Each stamp is to illustrate a different athletics event.** **The design to be used on the stamp showing running events is shown on the right.** **The other stamps are to show similar stylised athletes.**	
5(a)	**Develop a design for a stamp based on the following specification.** **The stamp must feature <u>one</u> of the following events:** • **shot put;** • **long jump;** • **javelin;** • **hurdles.** **The design must include a <u>stylised</u> drawing of an athlete involved in the event that you have chosen.** Design has been developed using notes and several sketches Design shows some attempt to stylise chosen athlete (1) **OR** A good stylised design has been produced (2)	**[3]**
5(b)	**Make a drawing of your chosen design within the outline of the stamp given below.** Design is drawn to an appropriate size and proportion to fit the given space Consistent use has been made of vertical, horizontal and 45 degree lines Consistent thickness/size of various body parts Drawing shows a high degree of accuracy	**[4]**
5(c)	**Suggest <u>one</u> way in which the stamps could be considered 'collectable' products.** Any appropriate reason e.g. stamps are collected for investment purposes, people find them interesting to look at, they are a reasonably cheap way of collecting 'miniature works of art'	**[1]**
5(d)	**Name <u>two</u> other graphic products that could be considered collectable.** Each appropriate product 1 mark e.g. posters, programmes, books, packaging of collectable items such as toys, watches, CDs, vinyl records	**[2]**
5(e)	**Explain why collectable products have only limited harmful effect on the environment.** Any appropriate explanation e.g. Collectable items are kept for long periods of time (1 mark) therefore no disposal costs are involved (1 mark)	**[2]**
	Paper Total	**[60]**

Assessment Objectives Grid (includes QWC)

Question	AO1	AO2	AO3	Total
1(a)(i)	1			**1**
1(a)(ii)	2			**2**
1(b)			2	**2**
1(c)	1			**1**
1(d)	1			**1**
1(e)	2		1	**3**
1(f)	2			**2**
2(a)			2	**2**
2(b)	3			**3**
2(c)	1			**1**
2(d)(i)	5			**5**
2(d)(ii)	1			**1**
3(a)	5			**5**
3(b)	2			**2**
3(c)	2			**2**
3(d)	1		1	**2**
3(e)	1			**1**
4(a)	1			**1**
4(b)	1		1	**2**
4(c)	4			**4**
4(d)	5			**5**
5(a)	3			**3**
5(b)	4			**4**
5(c)			1	**1**
5(d)	2			**2**
5(e)	1		1	**2**
Totals	**51**		**9**	**60**